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# **EXHIBIT 3**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: § Group Art Unit: 1764  
David R. Battiste §  
§  
Serial No.: 09/705,316 § Examiner: Dang, Thuan D.  
§  
Filed: November 3, 2000 §  
§  
For: IMPROVED MONITORING AND § Atty. Docket: CPCM:0008/FLE  
CONTROL OF PROCESSES FOR § 33938US  
MAKING 1-HEXENE §

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-145031

CERTIFICATE OF MAILING 37 C.F.R. 1.8	
I hereby certify that this correspondence is being deposited with the U.S. Postal Service, with sufficient postage, as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date below.	
March 24, 2004	Helen Tinsley
Date	Helen Tinsley

Sir:

**DECLARATION UNDER 37 C.F.R. § 1.131**

I, David R. Battiste, hereby declare as follows:

1. My residence address and citizenship are set forth below, under my signature.
  
  
2. I am the sole inventor of the subject matter set forth in the above-referenced application.
  
  
3. I conceived of the subject matter disclosed and claimed in the above-referenced application at least as early as July 19, 1999. This conception is evidenced by four (4) pages from my laboratory notebook, which record the calibration results of a Low Resolution Raman

Spectrometer in preparation of an actual reduction to practice of the claimed subject matter. A redacted copy of the four (4) pages from my laboratory notebook is attached hereto as Exhibit A.

4. I actually reduced to practice the subject matter disclosed and claimed in the above-referenced application at least as early as August 11, 1999. My actual reduction to practice is evidenced by three (3) pages from my laboratory notebook, which record the results of a successful test of an implementation of the claimed subject matter. A redacted copy of the three (3) pages from my laboratory notebook is attached hereto as Exhibit B.

5. All acts related to my conception and actual reduction to practice of the invention took place in the United States of America.

6. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements are made with the knowledge that willful false statements, and the like, are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Dated: 2/27/04

By: David R. Battiste  
David R. Battiste

Declarant's Full Name: David R. Battiste

Country of Citizenship: U.S.A.

Residence Address: 307 Stoneridge Court,  
Bartlesville, Oklahoma 74006

# EXHIBIT A

## Low Resolution Raman Project

## BBA Recovery

Mea

Spectrum	Time (min)	File	Comment	Time
10	CyC688	Pure	$C_2^= 97.33\%$ / 2.67% Dodecane	
10	CyC688F	"	Internal Standard IS = 2.67%	7:10
60	CyC660	"		
60	CyNC21b1	$C_2^= 1.53\%$ / $\text{IS} = 96.02\%$ / IS = 2.45%		8:01
60	CyNC21b2	" " "		
60	High C2 Level	$C_2^= 20.44\%$ / $\text{IS} = 78.20\%$ / IS = 1.19%		
20	C2at20	Pure $C_2^= 400$ psig, 450g/h flow		
20	C2at20A	"		
20	C2at20B	"		
60	C2at60	"		
60	C2at60A	"		
60	C2at60B	"		
60	C2at60C	"		
20	CYC2a20	Cyclohexane + $C_2^=$ at .5 gal/hr		
20	CYC2a20A	$C_2^=$ at 450g/h		11:3
20	CYC2a20B	450 liter back		
60	CYC2a60	pellets		
60	CYC2a60A	"		
60	CYC2a60B	"		
60	CYC2a60C	"		
036hr	60	CYC2a60B - GC sample		
		$C_2^= 19.21\%$ / $\text{IS} = 79.62\%$		
20	CYC2a20C	$C_2^=$ / IS = 1.05%		
30	CYC2a30			13:2
16hrs	30	CYC2a30	Changed $C_2^=$ level	
	30	C6C2a30A	GC Sample; $C_2^= 11.58\%$ / IS = 87.28	
	20	C6C2a20	IS = 1.08%	
	20	C6C2a20A	"	
	60	C6C2a60		
	60	C6C2a60A		
12hr	30	CYC2b30	GC Sample; $C_2^= 8.12\%$ / IS = 90.62%	
	30	CYC2b30A	IS = 1.21%	
	30	CYC2b30B or C2		
	60	CYC2b60		
	60	CYC2b60A		
18	30	CYC6d30	Shut off $C_2^=$ at 1418 to get $\text{IS}$	
	20	CYC6d20		14:0
	20	CYC6d20A		
	60	CYC6d60		
	60	CYC6d60A		
	60	CYC6d60B - GC sample		
		$C_2^= 0.30\%$		
		$\text{IS} = 97.65\%$		
		IS = 1.95		
				14:1
				Ste

I. S. = Internal Standard

Measurement of LRR Spectrum of Cyclohexane/Hexane Blends with Ethylene Added

Time	Spectral Time	File	Comment
7:10AM			Start the 25% RIFENE in cyclohexane solution + add ethylene to it at a rate of 112 g/hr through RIFENE reactor in 88°F (G. Cowan)
8:01AM	30	Blendo1	- GC sample taken. Actual concentration measured by GC $C_2 = 5.44\% / C_6 = 21.35\% / C_6C_6 = 72.22\% / IS = 0.89$
	30	Blendo2	Second spectrum, same condition. $D_{coinc} = 0.01$
	60	Blendo3	First 60 sec spectrum
	60	Blendo4	Second " "
8:30AM			Changed to the 225 g/hr rate of $C_2$ addition from the starting 112 g/hr rate. 450 psig back pressure. Room temperature. Had to go to phone conference. Returned at 11:15. Reactor purged.
11:31AM	30	Blendo5	Taken before GC sample run.
	30	Blendo6	- GC sample: $C_2 = 16.91\% / C_6 = 19.53\% / C_6C_6 = 62.50\% / IS = 0.99\%$
	60	Blendo6	60 sec. spectrum
	60	Blendo7	" " "
1320thu	30	Blendo8	- GC sample at 450 g/hr rate of $C_2$ $C_2 = 24.54\% / C_6 = 16.85\% / C_6C_6 = 56.99\% / IS = 1.25$
	30	Blendo9	
	60	Blendo10	
		011	
		012	
1400			Switched to nominal 15% $C_2$ blend in $C_6C_6$ , run with no $C_2$ added
1403thu	60	Blendo13	- GC sample at 0 rate of $C_2$ addition. $C_2 = 0.01\% / C_6 = 14.69\% / C_6C_6 = 83.97\% / IS = 1.33\%$
	60	014	
	30	015	
	30	016	
1410thu	30		Started adding $C_2$ at 112 g/hr rate at

Continue page 19

Time	Specified Time	File	Comment
1452	30	Blend017	GC Sample run
	30	Blend018	$C_2^- = 2.98\% / C_6^- = 14.53\% / \text{IS} = 81.18\% / \text{IS} = 1.27\%$
	60	Blend019	" " "
	60	Blend020	" " "
1505 hrs	Changed to 225 g/lhr $C_2^-$ added level.		
	60	Blend021	$C_2^- = 13.69\% / C_6^- = 12.20\% / \text{IS} = 73.13\% / \text{IS} = 0.89\%$
	30	022	
	30	023	
1558 hrs	Changed to 450 g/lhr rate $C_2^-$ added. PSIG = 400.		
1643 hrs	30	Blend024	GC sample Run!
	30	Blend025	$C_2^- = 20.06\% / C_6^- = 10.91\% / \text{IS} = 67.83\% / \text{IS} = 1.03\%$
	60	Blend026	
	60	Blend027	
1350	30	Blend028	30 sec. stable 112 g/lhr $C_2^-$ into 15% Stock Soln of $C_2^-$ in $C_2/C_6$ This is with dark current used for Hydrogen spectra.
	30	Blend029	Re established dark current + took spectrum with GC analysis - GC shot: $7.38\% C_2^- / 12.77\% C_6^- / 77.50\% C_2/C_6$
	30	Blend030	
30	60	Blend031	
30	60	Blend032	Changed to
			Changed to 450 g/lhr $C_2^-$ rate at 1412 hrs.
	30	Blend033	- GC sample taken: $20.06\% C_2^-$
	30	Blend034	$10.78\% C_6^-$
	60	Blend035	$67.70\% C_2/C_6$
	60	Blend036	
			Hydrogen spectra taken of standard 1/4 cylinder Hydrogen at 100 psig at Ramon probe. Files: Hydrogen1/H2at6011/H2at6012/H2at3011/H2at3012
			60 sec 60 sec 50 sec 80 sec

Continual LRR Spectra Collection: 88F Setup

(min)	Spectral File	Comment
1045		
30	IC4001	Isobutane + Hexene. GC sample: IC4 = 94.19% / Butene = 0.58% /
30	IC4002	another butene = 0.08% and $C_6^- = 5.13\% / C_2^- = 0$
60	IC4003	
60	IC4004	
11:15	60 IC4005	Changed to feed 30g $C_2^-$ / hr actually ~ 76g / 2.25 min period GC Sample at 1330 hrs: $IC4 = 86.15 /$ Butene = 0.43 + 0.09 / $C_2^- = 4.98 / C_6^- = 5.06\% / C_2^- / C_6^- = 1.20\%$
11:30	60 IC4006	
1340		Change $C_2^-$ feed rate to 65g / hr at 1340 hrs.
1442	60 IC4007	
60	IC4008	- GC sample taken: $IC4 = 84.65\% /$ Butene = 0.44 + 0.08% / $C_2^- = 7.27\%$
60	IC4009	$C_6^- = 4.80\% / C_2^- / C_6^- = 2.67\%$
1445		Increased $C_2^-$ to 112g / hr feed rate
5:30	60 IC4010	- GC Sample at 1530 hrs: $IC4 = 83.49\% /$ Butene 0.46 + 0.07% / $C_2^- = 11.04\%$
	60 IC4011	$C_6^- = 4.77\% / C_2^- / C_6^- = 0.13\%$
1535		Changed to straight isobutane with no hexene and no ethylene.
1600	60 IC4012	- GC Sample at 1550 hrs.
	60 IC4013	
	60 IC4014	Still isobutane
1608		Change to mixed decenes. Blow out line $\text{N}_2$ then put in decenes Nitrogen spectrum saved
	60 Nitrogen	
	60 Decenes	- Mixed decenes to determine whether or not there is a
	60 DeceneA	possibility to detect these compounds.
30	Run001	First sample $\text{C}_2^- = 85.98, C_6^- = 2.27, C_8^- = 13.54$
30	Run002	GC sample $= 85.85, = 2.51, = 13.32$

# EXHIBIT B

Second Reaction Monitoring  $C_2^-$  to  $C_6^-$  with R-2000

contd

Topic

9:55A

9:58A

10:17

10:58

11:45

12:23

13:00

13:32

14:12

14:5

15:4

16:2

8/12 PM

~8:01

8:10

807 844

8:14

9:13

10:1

11:0

11:1

11:5

Time	Run #	Comment	Time
7:55A	ARXN000	Hot cyclohexane wash of reactor, 150°C, to flush poison after 3cc TFA treatment	12:23
8:05A	ARXN001	Second spectrum during hot cyclohexane wash; contains $C_2^-$ , $C_6^-$ + dodecane	13:00
8:10A	ARXN002	Third hot wash spectrum just before putting catalyst in reactor at 8:11 AM	13:32
8:21	ARXN003	Spectrum with catalyst being pumped into reactor with cyclohexane + dodecane	14:12
8:27	ARXN004	Still only cyclohexane + catalyst	14:5
8:37	ARXN005	Still only cyclohexane + catalyst	15:4
8:42	ARXN006	Last sample before $C_2^-$ and $H_2$ added	16:2
8:50	ARXN007		8/12 PM
8:55	ARXN008		~8:01
9:00	ARXN009		8:10
9:05	ARXN010		8:14
9:10	ARXN011		9:13
9:15	ARXN012		10:1
9:20	ARXN013		11:0
9:25	ARXN014	- Reset dark current 09/11/99 \ 00180101.0 $C_2^-$ / $C_6^-$ / Cyclohexane / 2ethylhexyl internal standard / dodecane	11:1
9:37	ARXN015	- Took GC sample { 32.44 / 0.079 / 62.11 / 4.60 / 0.586 }	11:5
9:58	ARXN016	- Next spectrum for duplicate runs.	
9:40	ARXN017		
	ARX		

Set up Time Acquisition: Toggle Laser On/Off R, Laser Warmup time 40 sec, Integration 30 sec, Store Dark Before Each Acq, Delay before 1<sup>st</sup> Acq = 3 sec, Delay between Acquisitions = 10 sec, Number of Acq = 500, 17.6 sec. Program includes IR & A exp

Reaction at 88°F Conversion of C<sub>2</sub> to C<sub>6</sub>

Time	Spl	Test of Model			Analyzed by GC				Dodecan	
		Predicted	Cyc <sub>6</sub>	C <sub>2</sub>	S	Cyc <sub>6</sub>	C <sub>2</sub>	C <sub>6</sub>	C <sub>10</sub>	IS
~10:55 AM	Run001									
~10:58 AM	Run002	85.5	2.57	13.54	83.71	3.99	10.22	0.774	1.29	Heat NIR cell mlin
11:22	Run003	81.60	3.43	17.30						
11:31	Run004	79.93	4.40	17.48						
11:40	Removed 9ml sample cell of nearIR from line to keep from having lag time from GC to Raman probe, Sample pressure 450 psig.									
11:45	Run005	82.03	2.61	19.78						
11:52	Run006	80.52	3.44	19.89						
11:57	Run007	80.59	3.55	19.63	* Took GC 79.006	4.53	13.65	1.57	1.11	
12:06	Run008	80.60	3.62	19.36						
12:15	Run009	80.49	4.25	18.48						
12:30	Run010	80.24	4.28	17.47						
12:45	Run011	81.77	3.28	17.14						
13:00	Run012	78.67	4.53	18.22	* Took GC 77.824	5.05	14.707	1.320	1.020	
13:15	Run013	78.18	4.80	17.98						
13:30	Run014	77.75	5.18	17.93						
13:45	Run015	78.11	5.11	17.26						
14:00	Run016	77.81	5.08	18.17	* Took GC 77.35	5.31	14.95	1.25	1.06	
14:15	Run017	77.95	4.85	18.08						
14:30	Run018	77.83	4.75	18.41						
14:45	Run019	79.02	4.47	17.27						
15:00	Run020	79.11	4.67	17.30	* Took GC 78.87	5.28	13.52	1.19	1.07	
15:15	Run021	78.59	5.16	17.36						
15:30	Run022	79.50	5.07	18.21						
15:45	C23									
16:00	O24				* Took GC 76.88	5.86	14.71	1.20	1.03	

Continued: Set up automatic acquisition every 180 sec.

Time	Scan#	File	GC File 8/11/99	C <sub>2</sub>	C <sub>6</sub>	Cyc	24	Dodecane
~9:55A	0	ARXA0001	ARXB0001					
9:58A	1	000012						
10:17	5	000016	00280201.D	12.968	3.449	66.242	9.17(?)	1.355 0.050
10:58	17	00017	003B0301.D	7.617	15.475	69.551	4.81	1.013 .751
11:45	30	00030	004B0401.D	7.910	17.387	70.024	2.078	1.974 .105
12:23	41	00041	005B0501.D	6.948	18.335	69.645	2.248	.961 .124
13:00	51	00051	006B0601.D	6.112	18.991	68.423	2.494	1.049 1.804
13:32	61	00061	007B0701.D	6.081	18.290	71.186	1.181	1.009 1.945
14:12	71	00071	008B0801.D	5.549	19.208	70.775	1.046	1.027 2.025
14:50	82	00082	004B0901.D	5.612	18.966	71.122	1.477	1.021 1.979
15:42	96	00096	010B1001.D	6.386	20.444	68.638	1.049	.946 2.177
16:21	107	60107	011B1101.D	6.319	21.175	67.722	1.129	1.928 2.309
~8:30	auto start	ARXB						
8:07	2	00002	91K					
8:49	1#2	00002	013B1301.D	8.654	23.879	64.942	1.016	.857 1.315
8:49	14	00014	014B1401.D	8.201	3.8053	48.501	1.016	1.604 3.984
9:39	28	00028	015B1501.D	8.533	50.745	29.238	0 -	.409 9.787
10:21	39	00039	016B1601.D	6.466	51.846	29.893	0 -	3.98 10.019
11:00	50	00050	Blk	deun to clean filter.				
11:06	52	00052	017B1701.D	5.677	52.733	25.433	0 -	.361 13.798
11:50	64	00064	018B1801.D	5.609	52.182	26.405	0 -	.372 13.397

ation 3000  
long distance  
of ARX A.C.